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N A T I O N A L S E C U R I T Y

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## P R E F A C E

Stability has proved to be an important concept in modern strategic planning. It is also one of the most misused, and perhaps, misunderstood, of our modern strategic concepts. Because of the importance of stability in modern force planning, Pepperdine Research Institute undertook a thorough investigation of the concept, its definition and uses in the literature of strategic analysis, and the consequences of its adoption as a goal of National Strategic Planning.

This report on the PRI "Study of Stability as a Goal of National Strategic Planning", USAF Contract Number F44620-67-C-0101, Air Force Directorate of Doctrines, Concepts and Objectives (AFXDOC) is presented in three volumes. Volume One is the Summary Report and contains the formal conclusions of the study together with summaries of the analysis which lead to these conclusions. Volume Two contains more detailed analyses, the study bibliography, and several staff papers on subjects of importance to the project. Volume Three contains the edited transcripts of a two-day conference on stability and its relationship to national strategic planning.

This study was prepared by the Air Force Projects Office of Pepperdine Research Institute. The Principal Investigator of the Study was Dr. J. E. Pournelle, Managing Director of PRI. A significant portion of the study effort was directed by Dr. Stephen Johnsson, Senior Research Associate, PRI.

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## I GENERAL CONCLUSIONS

1. STABILITY IS AN AMBIGUOUS CONCEPT REQUIRING CAREFUL DEFINITION WHEN EMPLOYED AS A GOAL OF NATIONAL STRATEGIC PLANNING. MANY USES OF THE TERM ARE CONTRADICTORY.

At least seven mutually incompatible definitions of the term "stability" are in use in the strategic literature at the present time. Each, if adopted, could imply different policies.

2. STABILITY IN THE NUCLEAR ERA IS A COMPLEX DYNAMIC PHENOMENON. STATIC STABILITY OF THE "BALANCE OF TERROR" DOES NOT EXIST. IT IS UNLIKELY THAT STATIC STABILITY IN ANY REGIME OF CONFLICT IS POSSIBLE. MAINTAINING STABILITY REQUIRES CONSTANT EFFORT.

The stream of technological development cannot be halted. Failure to develop, understand, and utilize new technology is destabilizing.

3. IN A WORLD WHICH CONTAINS AT LEAST ONE POWERFUL "DISTURBER" POWER, STABILITY REQUIRES THAT THERE BE AN EQUALLY DETERMINED "STABILIZER" POWER. THE STABILIZING POWER REQUIRES SUPERIORITY OVER THE DISTURBER POWER BECAUSE THE DISTURBER CHOOSES THE TIME, PLACE, LEVEL AND TYPE OF CONFLICT.

One situation consistent with most otherwise contradictory conceptions of "stability" is the superiority of a power dedicated to stabilizing international relations. The one factor common to all conceptions of instability is the superiority of disturber power.

## II STABILITY IN THE REGIME OF CENTRAL NUCLEAR WAR

4. THE STABILITY OF CENTRAL NUCLEAR WAR IS INCREASED WITH SIGNIFICANT INCREASES IN NUMBERS OF STRATEGIC OFFENSIVE FORCES AND DECREASED WITH REDUCTIONS OF THESE FORCES.

Other things being equal, the higher the force levels, the lower the incentive to launch pre-emptive strikes, and thus the greater the stability in the regime of central nuclear war. At high force levels the marginal utility of quantitative additions to the strategic offensive forces (SOF) is low.

5. BALLISTIC MISSILE DEFENSES MAY HAVE SOME TENDENCIES TO DESTABILIZE THE REGIME OF CENTRAL NUCLEAR WAR BY REDUCING EXPECTED DAMAGE LEVELS, BUT THESE ARE COMPENSATED BY INCREASED PROTECTION AGAINST ACCIDENTAL AND CATALYTIC WAR. TO THE EXTENT THAT BALLISTIC MISSILE DEFENSE IS ACCOMPANIED BY INCREASES IN THE STRATEGIC OFFENSIVE FORCES, THE NET EFFECT IS HIGHLY STABILIZING.

High strategic offensive force (SOF) levels with ballistic missile defense (BMD) are more stabilizing than lower levels without BMD. Asymmetric development of BMD by a disturber power is clearly destabilizing.

### III STABILITY OF THE ARMS RACE

6. ARMS RACES IN THE NUCLEAR ERA ARE ENTIRELY DIFFERENT FROM THOSE OF THE GUNPOWDER ERA. QUANTITATIVE NUCLEAR ARMS RACES ARE SELF DAMPING AS MUTUAL INCREASES IN NUMBERS OF WEAPONS INCREASE STABILITY WHILE THE MARGINAL RETURNS FROM ADDITIONAL WEAPONS DECREASES.

The more offensive weapons in the inventory, the more stable the balance in the central nuclear regime. New SOF acquisitions should not be rejected on the grounds of stability alone. Stability requires that the stabilizing power possess both an absolute and a relative minimum force capability. The absolute minimum is set by technology and geopolitical factors; the relative minimum is set by the force structure of the potential disturbers.

Quantitative increases in force levels reduce incentives to use the force, resulting in decreased tendency to procure new forces; thus quantitative nuclear arms races are self damping.

7. FORCE MODERNIZATION IS NOT AN ARMS RACE. FAILURE TO ENGAGE IN FORCE MODERNIZATION IS DESTABILIZING.

The major incentive to engage in a nuclear arms race is the possibility of winning it. Failure to match qualitative gains in enemy force effectiveness thus encourages arms races and is destabilizing. Many technology advances are made independently of the will of the nuclear powers. In a world of technological secrecy, failure to engage in force modernization is clearly destabilizing.

#### IV STABILITY AND INTERNATIONAL SECURITY

8. INCREASED STABILITY AT THE LEVEL OF CENTRAL NUCLEAR WAR WEAKENS THE CREDIBILITY OF THE THREAT OF MASSIVE INTERVENTION AGAINST THE ENEMY HOMELAND. THIS HAS GREATLY DECREASED THE STABILITY OF DETERRENCE IN AREAS WHICH ARE HIGHLY VALUABLE AND HIGHLY VULNERABLE.

In particular, increased stability at the highest level has destabilized the military balance of Europe. Restoring the military equilibrium in Europe will require changes in present policies, and possible changes in force structures. New deterrent threats, or new defensive capabilities, or both will be mandatory. In the era of thermonuclear stability, the security of Europe cannot be assured by strategic deterrence alone.

9. THE THREAT OF ESCALATION CAN BE HIGHLY STABILIZING IN PARTICULAR CIRCUMSTANCES. THERE IS NO DIRECT OR OBVIOUS RELATIONSHIP BETWEEN STABILITY AND ESCALATION.

The ability to control escalation may not always be stabilizing; it is precisely the threat of runaway escalation which may deter certain kinds of aggression and thus stabilize an unstable situation. A credible capability of stabilizer powers to escalate conflict may be the chief requirement for stability at lower levels of violence.

10. USE OF TACTICAL NUCLEAR WEAPONS FOR DEFENSE OF ALLIES IS NOT NECESSARILY DESTABILIZING AND MAY HAVE A STABILIZING EFFECT IN CRITICAL AREAS.

Stabilizer powers require clear and unambiguous capabilities to meet disturber superiority in conventional capability, or disturber use of tactical nuclear weapons.

## I N T R O D U C T I O N

## BACKGROUND

In the era of the Cold War, peace seems to be an illusory goal. In searching for substitute goals of national strategic planning, many analysts have settled upon stability; if we cannot have a disarmed world, or one in which conflicts are settled by the rule of law, then perhaps we can work toward a situation in which force relationships do not suddenly change, and nuclear attack by either side seems unlikely. If there is to be a "balance of terror," it can be a stable balance, not a delicate one.

Theorists as diverse as Herman Kahn, Albert Wohlstetter, Thomas Schelling, Bernard Brodie, Alain Enthoven and Stefan Possony came to agree that stability was a desirable goal in modern international relations. There was sufficient agreement that force planners began to consider stability as one goal to be achieved, and to adapt weapons designs toward assuring stability; that is, to make the "delicate balance of terror"<sup>1</sup> somewhat less delicate.

Former Secretary of Defense Robert S. McNamara adopted "stability" as a major goal governing national defense policy. Other arms of government concerned with the national security likewise adopted stability as a goal, and sought policies likely to produce stability in U.S.-Soviet relations. The concept was appealing to the United States for several reasons: It appeared to be compatible with the policy of containment<sup>2</sup> which the United States had pursued since the late 1940's; it seemed a reasonable strategy for a *status quo* power, which the United States had been since the annexation of Hawaii; and promised some relief from the burden of armament. For these and other reasons, stability was rather thoroughly adopted as a goal for national strategic planning. This is perhaps best illustrated by two examples. First, the U.S. proposal for the "Johnson Freeze" in strategic nuclear weapons was presented in Geneva in 1964.<sup>3</sup> Not only was the proposal one to simply halt the production of nuclear weapons and delivery systems, but in addition the U.S. proposed a ban on the construction of anti-ballistic missile defense on the grounds that such systems were "destabilizing." In his presentation Mr. Foster did not find it necessary to amplify his remarks; it was assumed that everyone present

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<sup>1</sup> Delicate balance of terror: Title of a major essay by Albert Wohlstetter which argued that nuclear weapons did not create their own automatic deterrence; the first major paper to state that stability is not necessarily static. Wohlstetter, Albert, "The Delicate Balance of Terror," *Foreign Affairs*, January, 1959.

<sup>2</sup> The origin and some consequences of this strategy are discussed in Volume Two.

<sup>3</sup> Foster, Wm. C., Johnson Five Point Arms Control Program; U.S. Arms Control and Disarmament Agency, Washington, D.C., 1964.

knew what was and was not stabilizing, and also that both sides would agree that any destabilizing weapons should not be constructed. As a second example, Secretary of the Air Force Harold Brown more recently stated that the major goal of U.S. strategic policy was "deterrence without destabilization."<sup>4</sup> Although there is agreement upon stability as a goal, theorists have widely differing opinions as to the methods for achieving it; and, indeed, upon what "stability" might be. There is little or no agreement on a basic definition of the term, although everyone seems to believe that there is some universally acceptable meaning which should be employed. Precisely because the term seems to refer to something easily understood, there has been little attempt to draw a precise definition.

Lack of a definition was not the only difficulty with stability as a goal to be translated into specific research development and procurement decisions. There was also less than universal agreement upon exactly what kinds of systems were stabilizing; and the relationship of stability in one regime of force and violence to other levels of conflict. For all these defects, however, the concept was found to be useful, and is now accepted as a major goal of national strategic planning.<sup>5</sup>

#### PURPOSE OF THIS STUDY

This study of Stability as a Goal of National Strategic Planning is concerned with the meanings of the concept of "stability" as the term is employed in strategic analysis; and with the implications of the concept for planning. We have investigated the diversity of meanings which have been given to the term; formed a working definition; and analyzed some of the logical consequences of adopting stability as a goal of national strategic planning. In addition, we have examined requirements for stability at various levels of international competition.

Our analysis indicated many critical areas which required refinement of strategic thought if stability were to be a meaningful goal. The most important of these were: the "Technology War" or competition in qualitative arms development; stability of arms races in the nuclear era; international security and protection against aggression; and the problem of escalation. Each of these problems is discussed in this volume.

Obviously, no single study of national strategic objectives can be definitive. This study will introduce the reader to the concept of stability, and point out unanswered problems inherent in its use.

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<sup>4</sup> Brown, Harold, "U.S. Strategic Policy -- Deterrence Without Destabilization," *Air Force*, September, 1968, p. 56.

<sup>5</sup> *Ibid.*

- THE MEANINGS OF STABILITY -

STABILITY AND MUTUAL SUFFICIENCY

Our research indicates that the concept of stability has been employed in a rich variety of meanings, not all of which are compatible with each other. Moreover, it is not always clear that analysts or decision makers have a definite and precise concept in mind when they use the term. For example, in a recent publication former Deputy Director of Defense Research and Engineering Daniel Fink expresses concern about Soviet reaction to the limited U.S. ABM now authorized, and states that he "would expect this reaction to take the form of penetration systems rather than a destabilizing proliferation of destructive power."<sup>6</sup> This implies a belief that additional offensive weapons can be destabilizing. Other theorists claim that Ballistic Missile Defense systems are themselves destabilizing.

In other contexts, stability has been seen by a number of analysts and decision makers as a static state, one in which neither the United States nor the Soviet Union adds to strategic inventory. This may be carried to quite extreme lengths, even to the point of rejecting possible force improvements on the grounds that they may be too effective and endanger stability. Those who are concerned with static states argue that any change in the effectiveness of either side must inevitably be destabilizing.

It is generally agreed that one aspect of a stable situation is a very low probability of thermonuclear central war. An argument is then made from symmetry: that is, the situation is stable only if neither side possesses the *capability* of launching a successful first strike.<sup>7</sup> When both sides possess sufficient survivable weapons to insure that after enduring the best attack the other can launch, the attacked nation can still destroy the attacker, a state of *mutual sufficiency* is said to have been achieved. This is presumed to be reasonably stable, in that neither side has sufficient rational incentive to launch a disarming attack. Consequently Secretary McNamara was said to have stated with regard to Soviet acquisition of invulnerable weapons, "The sooner the better;"<sup>8</sup> that is, that it was to the interest of the United States that the Soviets deploy secure weapons capable of striking the United States. Although never agreed to by Secretary McNamara, some analysts drew the conclusion that it would be to the interest of the United States to give the Soviets sufficient data to allow them to construct Polaris submarines, as this would give them a secure second strike capability, and thus increase the stability of the balance of terror.

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<sup>6</sup> Fink, Daniel J., "Strategic Warfare," *Science and Technology*, October, 1968, p. 64.

<sup>7</sup> Obviously, any possessor of nuclear weapons can strike first. A successful first strike implies the reduction of enemy retaliatory forces below an acceptable limit.

<sup>8</sup> Alsop, Stewart, "His Business is War," *Saturday Evening Post*, May 21, 1966.

We will investigate some of the problems of the assumption of symmetry in a later section. For the present, it is sufficient to note that concepts of mutual sufficiency have led to a strong tendency to identify stability with *parity*. This view is generally accompanied by a parallel belief that once parity has been achieved, arms reductions can occur by agreement; and these reductions will be stabilizing.

Analysts strongly committed to strategies involving arms control commonly assume a symmetry of interests between the United States and the Soviet Union. One assumption often made is that the Soviet Union will not attempt to achieve superiority or supremacy;<sup>9</sup> that stabilizing the arms race is their goal as well as our own; and that superiority is not worth achieving, while supremacy is not possible of achievement. Therefore no one will seek superiority.

This had led some members of the strategic analysis community to advocate a policy of "pause" -- that is, a cessation of weapons construction by the United States in order to allow the Soviet Union to draw even and achieve parity. Once the Soviets possessed their own Assured Destruction capability we would enter the era of mutual sufficiency in which the construction of strategic weapons systems would cease. It was believed by advocates of this policy that once parity had been achieved, the Soviets would be ready to engage in meaningful arms control negotiations; and that such negotiations were not only valuable in themselves, but would lead to stabilizing agreements.

Advocates of this policy reasoned as follows: there is, or will soon be, a stable balance of terror which no one can upset. We have reached, or will soon reach, mutual sufficiency, and this will be a permanent condition. Weapons policies may safely be confined to research in technologies to guard against breakthroughs which endanger the assured destruction capabilities of both sides; no systems need be deployed, and in fact, deployment of new systems would endanger the static balance. As this condition was presumed to be permanent, it was stable by assumption and any advocate of deployment of new systems was in fact arguing for destabilization.

This world, assumed stable on the thermonuclear level, was often seen to be evolving toward peace and the rule of international law; that is, with the possibility of thermonuclear war removed, nations could again pursue rational policies uninfluenced by the fear of national extinction; and these policies would gradually lead to relaxation of tensions,

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<sup>9</sup> Supremacy is achieved when one side clearly possesses a full first strike capability. Superiority is achieved when one side has a superior capability coupled with large uncertainties in force effectiveness; or, when the residual damage of each side's SOF is mutually unacceptable, there is a great disparity of damage to one side because the other possessed a superior war fighting capability.

and finally to world peace. Advocates of this theory generally believe that the United States and the Soviet Union are gradually converging with respect to social, political and economic systems. When this convergence is complete, there will be no cause for conflict, or at least none tending towards war. In the view of some analysts of this school, we have already entered a new era in international relations; the Cold War, in fact, is over.<sup>10</sup>

#### SEVEN TYPES OF STABILITY

Adopting "stability" as a goal without understanding its implications can lead to undesirable policies, when improper conceptions of stability are employed, depending in part upon which definition of the term is accepted. Our investigation leads us to conclude that when two analysts discuss "stability," it is quite possible that they do not at all refer to the same thing; although each believes he knows what the other means, it is not at all certain that this is the case.

Our investigation revealed that seven basic definitions of the term "stability" are in common use. These are summarized on Chart One, and discussed in detail in Volume II of this study. It should be fairly obvious from an examination of the chart that the seven concepts are not precisely identical, although some may overlap; and that it is at least possible that the requirements for one kind of stability may differ from those of another. For example, an obvious (although impossible) means for achieving nuclear or Type One stability would be the destruction of every nuclear weapon in existence coupled with the execution of every scientist and technician capable of constructing new ones. It is not at all clear, however, that this would lead to world peace. In fact, the first result might quite possibly be the invasion of Europe by forces using non-nuclear weapons as she would be left relatively unprotected. Another result could easily be a massive program of weapons construction.<sup>11</sup>

It is clear, therefore, that "stability" is a more complex concept than might at first be imagined, and that it must be used with care in formulating national policy. We have attempted to analyze requirements for seeking, and consequences of obtaining, stability in various regimes of conflict. Whenever possible, the analysis has been independent of the objectives of the parties to international conflict; but in general, this proves to be impossible. *All definitions of stability have one common factor:* they are incompatible with an international situation in which a power with "disturber" objectives enjoys decisive superiority.

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<sup>10</sup> This is discussed in Volume Two. The view that the Cold War is over received a setback with the invasion of Czechoslovakia, but remains influential. According to this theory, the Cold War actually ended after the Cuban crisis of 1962.

<sup>11</sup> The stabilizing effects of nuclear weapons have been noted by, among others, Bernard Brodie and General d'Armee Andre Beaufre.

C H A R T   O N E  
S E V E N   T Y P E S   O F   S T A B I L I T Y

1. PREVENTION OF CENTRAL NUCLEAR WAR
  - \* Balance of Terror
2. PREVENTION OF AGGRESSION
  - \* Stability of International Boundaries
3. PREVENTION OF CONFLICT ESCALATION
  - \* Conflict Management
4. PREVENTION OF ACCELERATED ARMS RACE
  - \* Action-Reaction Arms Race
5. PREVENTION OF DISRUPTIVE FORCES
  - \* Damping out of Provocative Issues
  - \* Balance of Power
  - \* Convergence of Socio-Economic Systems
6. PREVENTION OF INTERNATIONAL TENSIONS
  - \* Normalizing International Politics
7. PREVENTION OF INTER-STATE VIOLENCE
  - \* Rule of Law

THE DEFINITION OF STABILITY

For the purpose of this study, stability is defined as a condition in international politics in which sudden changes in the power relationships of the Great Powers do not occur without the mutual consent of the Powers, and there is a low probability that such changes will occur in the foreseeable future. Thus, stability implies a reasonably long duration.

Stability is thus seen as an enduring equilibrium of power. We define power as a complex function of means, will, willingness to take risks, and objectives; and although we have no exact definition, we believe the concept to be indispensable to the analysis of international politics and well understood by all analysts. Power is generally understood to be a capability to obtain one's objectives; and to be able to change one's objectives through a reasonably wide range.

Stability thus implies an equilibrium in power relationships. If one factor changes radically, others must change to redress the balance. For example, if the willingness of one side to take risks and upset the equilibrium changes, the other side must balance this through acquisition of better forces, greater willingness to use them, or some other compensating factor; failure to do so will be destabilizing. Stability does not require or imply equality of forces, force levels, or force capabilities.

We also use the concept of "disturber" and "stabilizer" powers. A disturber is a nation which has as its objective a significant change in the relationships of the Great Powers. Thus, if a disturber power is not successfully opposed, the situation is by definition unstable. A stabilizer is a power whose goal is preservation of stability; that is, whose goals can be achieved through slow and orderly processes of mutual agreement where change is desired.

In a world in which there is at least one powerful "disturber," there must also be a powerful "stabilizer," or stability cannot exist. The "stabilizer" must have sufficient power to successfully oppose the actions of the disturbers. Although some aspects of stability can be separated from the motives of the powers, and thus are purely symmetrical relationships, national objectives are important and cannot be ignored.

STABILITY OF THE BALANCE OF TERROR

THE REQUIREMENTS FOR STABILITY OF NUCLEAR DETERRENCE

TECHNOLOGY AND STABILITY

Despite the wide variation in definitions of the concept, analysts are generally agreed that one critical aspect of the modern world is the "stability of the balance of terror." That is, whatever else may be implied by stability, we must certainly include the absence of central nuclear war. There is no stability if nuclear war is probable either at present or the foreseeable future; and in fact, stability is an inverse function of this probability.

Given rational opponents, the probability of thermonuclear war is directly related to the probability of a successful first strike, where successful is defined as reducing the enemy's retaliatory power below some acceptable threshold through counterforce and BMD. Conversely, the balance between two powers is stable provided that the second strike capability of each power exceeds the acceptable margin of damage of the other. This is the situation of mutual sufficiency discussed above.

Logically, the stability of this situation may be seen as either present or to be constructed in future; and either as static or dynamic. Dynamic stability would be a situation in which the capabilities of the powers are continually changing, but there is a dynamic equilibrium between them so that the relationship of the powers does not change. The four possibilities, and representative schools of strategic thought which have adopted them, are shown in Chart Two.

CHART TWO

	PRESENT	CONSTRUCTED
STATIC	Minimum deterrence.	General and complete disarmament; Certain schools of arms control.
DYNAMIC	Most military planners; This study; Wohlstetter.	Arms controllers; "Parity" theorists.

LOGICAL FORMS OF STABILITY  
AND EXAMPLES OF SCHOOLS  
WHICH HAVE ADOPTED THEM

One major conclusion of this study is that the stability of the balance of terror is dynamic, not static; that it changes continuously; and that one of the most destabilizing moves a nation can make is to refuse to adapt to the dynamic conditions which prevail. Furthermore, the dynamism of the situation is largely independent of the will of the two nations. The force relationships of the powers will change even if both sides intend to prevent change.

Chart Three shows possible requirements for deterrence. In this chart, the requirements for deliverable warheads can be derived by examining the "deterrence bands." From the requirements for deliverable warheads, the requirements for deployed delivery systems can be computed, taking into account their vulnerability both on the ground and to enemy defenses, their reliability, alert readiness state, etc. Eventually, a discrete number of delivered weapons will be calculated. Adding some arbitrary percentage to compensate for our lack of confidence in the previous calculations, and adding another percentage as a safety factor, we could determine the size of force needed for deterrence, and construct it.

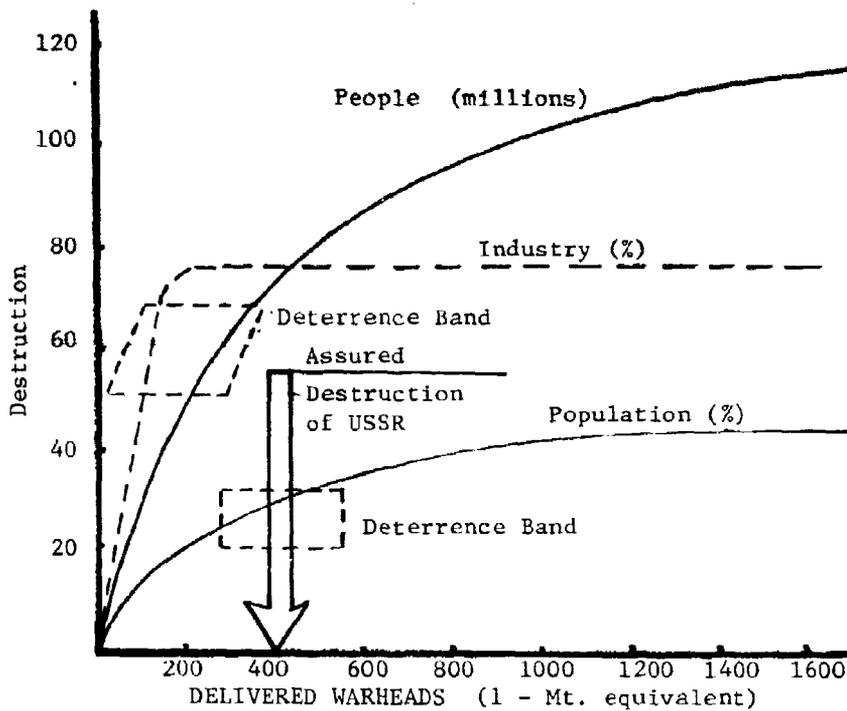
Assume now that there are no changes in the quality of the enemy weapons systems, either offensive or defensive. The fact remains that there will inevitably be changes in the requirements for deterrence. The enemy population will grow, so that killing some percentage of his population will require a larger number of deliverable warheads. His industry will expand. New industries will be constructed. In the case of the Soviet Union, new cities may be constructed as well. Many installations in these cities can be hardened, causing further increases in the required number of delivered warheads. This hardening may be a deliberate move to protect against nuclear attack, or simply the result of new construction technology. It may also be due to earthquake protection.<sup>12</sup> Thus, with no alteration in the size or quality of the opposing forces, the stability of the balance of terror degenerates. Note, however, that if the number of weapons in inventory is originally very large in comparison to the number required, it will take a long time to reach the point where a first strike is feasible. The fact remains that stability deteriorates.

In the real world, of course, the effectiveness of forces does not remain constant. With no intention of altering force capabilities on either side, the accuracy of ICBM systems has improved greatly between 1960 and 1968 as space programs reduced the geodetic and geophysical errors. Both space research and general advances in technology have produced lighter weight structures, vastly improving the range/payload capabilities of new missiles, even of missiles built simply to replace deteriorating early installations. Integrated circuitry makes possible

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<sup>12</sup> The technology base for civil defense is advanced in the United States well beyond what most might naively assume. One example of what can be accomplished when a conscious effort is made is the very elaborate installations of public buildings at Albany, New York. Even when only minimized effort is made, U.S. fallout shelters can be quite impressive. Where available technology is consistently applied, dramatic results are obtained.

CHART THREE



"Maintaining an 'assured destruction capability' means being able to destroy between 20% and 30% of the 1972 population of the USSR and between 50% and 70% of its industry. This would require the delivery of between 150 and 400 nuclear warheads."

Daniel J. Fink (Former Deputy Director of Defense Research and Engineering) "Strategic Warfare," Science and Technology, October 1968, Issue #82, page 54.

To determine the number of weapons in inventory which must be deployed in order to assure a given number of deliverable weapons, the influence of many other factors must be computed. The following partial and extremely simplified model and the nominal values for the variables are given for illustrative purposes only.

$W_d = W_i [(P_{ar})(R) (P_s) (1-P_k)]$  Where:  $W_d$  = Deliverable weapons;

$W_i$  = Delivery systems required in inventory;  $P_{ar}$  = Probability that the delivery system is alert and ready when required;  $P_s$  = Probability that the delivery system survives enemy first strike; and  $P_k$  = enemy defense system kill probability. Then:  $W_d = W_i [(.85) (.85) (.40) (1-.30)] = W_i (.22)$

$W_i$  for above values would be 1825.

on-board guidance systems of weights lighter than early tape controlled systems with less accuracy. All of these results could have been achieved without conscious effort to do so.

Thus, force capability improvements are inevitable. As it is by no means certain that both sides will refrain from taking advantage of these inevitable improvements, both sides must at the minimum make full use of the "bonus" discoveries which come their way. Furthermore, because the R and D programs of either side remain secret from the other, neither power can afford to ignore any significant possibilities: in order to maintain the equilibrium of power, both sides must discover and *exploit* every possible technological improvement to their strategic forces. Failure to do so would be destabilizing in the extreme.

Thus, stability itself requires active updating and improvement of strategic systems. Even if one side is sufficiently superior to the other to be able to afford deterioration of his relative strategic power, it should be clearly recognized that destabilization is the inevitable result of attempting to impose stasis on a dynamic situation.

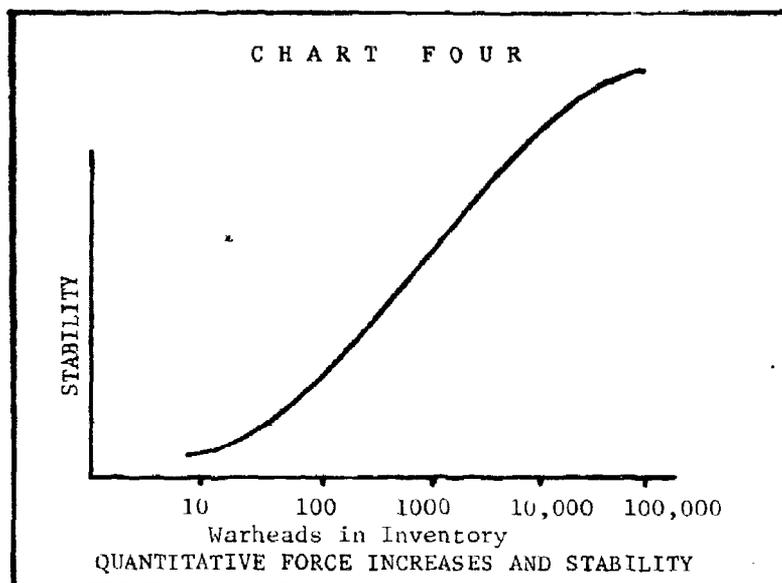
This would be true even if the motivation of each side were the same. In actual fact, of course, there is no symmetry of motives. The United States is a *status quo* or satisfied power; the Soviet Union, and perhaps as importantly Red China, are dissatisfied powers whose announced intention is revisionist. Thus it is to their advantage to pursue any improvements in strategic weapons for the purpose of obtaining superiority, or if possible supremacy, over the United States. Superiority can then be exploited through expansion of enemy extended deterrence; that is, through covering more and more operations with the nuclear umbrella.

#### SUFFICIENCY AND TECHNOLOGICAL SURPRISE

As the force relationships are constantly changing, due to the inevitable stream of technological advances of this century, we may note another simple but non-trivial conclusion. If one power has many multiples of the number of deliverable weapons required for his deterrence margin, the other side will require a large increase in his force capabilities in order to reduce the surviving enemy force below the critical level. This is true at all levels of armament, and leads to the interesting conclusion that the more deliverable weapons possessed by both sides, the more stable the balance of terror. There may be an economic point beyond which neither power cares to go; but the incentive to use nuclear weapons *decreases* with each parallel increase in force levels.<sup>13</sup>

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<sup>13</sup> There is a decreasing marginal utility at play here, of course; that is, each successive addition to the force levels produces a smaller increase in stability, provided that force effectiveness remains constant.



A conceptualization of the effect on the stability of the balance of terror of quantitative increases in force levels is shown in Chart Four above. We have no strong opinion concerning the exact shape of the "S" curve or the numbers on the abscissa, but it appears fairly obvious that force level is related to stability as shown. In our judgment, present levels put us somewhere in the middle of the curve. This chart, is of course, a static picture of a dynamic situation. Over a period of time, the march of technology will change the numbers required for any arbitrarily selected "level of stability."

The stability of this balance is also critically affected by the attacker to target ratio. This is the ratio of the number of offensive systems expended to kill targets to the number of targets killed, where targets are enemy strategic forces. Obviously, if this ratio is greater than unity, the attacker will require 2, 3, ... times more deliverable weapons than the defender in order to be able to destroy the enemy retaliatory force and also have weapons to negotiate from a position of supremacy after his first strike. Equally obvious, if the ratio is greater than one and the numbers of systems on each side is large, then the defender should have no difficulty maintaining a safe margin of deterrence. It is when the ratio is less than unity -- as it was in the bomber era, and may be again with MIRV systems -- that stability is threatened. However, MIRV also increases the capability of offensive systems to cope with BMD, and expands the number of targets which can be killed by each surviving second strike booster; these are stabilizing tendencies, but technology inevitably moves against static stability.

Technology, in general, moves by "S" shaped curves; that is, a slow period of development is followed by rapid exploitation, then finally an asymptotic approach to the full potential of the technological development. The position on the curve will determine the payoff from resources invested in that particular line of technology.

It is not always clear where we are on the "S" curve for any given system or concept. Furthermore, when a promising line of development is almost played out, breakthroughs in another area can change the entire situation. In the field of weapons, the machine gun, the tank, and the propeller driven airplane are examples of systems which were exploited in turn.

Thus, it would be a mistake to conclude that developments in ballistic missile technology and counterforce kill capabilities have reached the asymptotic stage. More important, we cannot be sure that Ballistic Missile Defense and nuclear technology are even beyond their initial development. An incorrect estimate of the possibilities of technological surprise would be destabilizing.

One obvious safeguard against technological surprises is numbers. To some extent, quantity can compensate for failure to deploy the best hardware. As we have seen, parallel increases in force size are not destabilizing. However, although increasing numbers of weapons increase stability against deliberate nuclear attack, they may also contribute to the possibility of accidental war, or unauthorized launch. By contrast, with large numbers of weapons in inventory, there is little incentive to salvo on early warning of a small enemy attack. This study does not attempt psychoanalysis: we cannot say what a national commander in chief would do if a single enemy missile obliterated one of his cities. We do point out that ballistic missile defenses will to a great extent obviate this question, and thus are stabilizing when coupled with large numbers of weapons in inventory. BMD can presumably cope with the unsophisticated attacks likely to result from accidents.

Stability of the balance of terror, or Type One Stability, is therefore seen to be dependent largely on two factors: number of weapons in inventory, and attacker to target ratio. The greater the number of weapons deployed on both sides, the greater the stability; and larger numbers can *partially* compensate for technological developments which affect the attacker to target ratios. However, technological surprise must also be avoided, and in the absence of reliable intelligence, this can be accomplished only through development and deployment of the most effective systems available. Enemy advances in technology which are not compensated by advances of our own will be highly destabilizing. Sufficiency is a temporary state at best, even at enormous force levels.

## STABILITY OF THE ARMS RACE

## WHAT IS AN ARMS RACE

## The Arms Race Danger

[These strategists] consider the arms race in itself more dangerous than an upset in the strategic balance and its exploitation by the enemy. Hence, they may be willing to risk the possibility of a strategic imbalance between the sides. They argue that such an imbalance could not possibly prove decisive, and, as such, is a calculated risk worth taking, while the arms race could easily accelerate until both sides lose control of it and a dangerous situation leading to disaster arises.

...[An] arms race, in principle, is a chain of reciprocal actions in which each side attempts to overtake the other, thus impelling both to advance. Through the mutual impetus given by each side the race may assume the character of a spiral. Thus if one side were to stop competing, the other side would presumably be influenced thereby and would be induced to slow down.<sup>14</sup>

..."Arms race" refers to the interaction between two or more adversaries' military programs, to a tendency for each side's program to respond to what the other is doing. The arms level that each is willing to support depends on the level the other side has reached. This is true whether each side is trying to be far ahead of the other, trying only to keep up with the other, or one is trying to maintain superiority and the other trying to avoid too serious an inferiority.<sup>15</sup>

The theoretical danger of a runaway arms race, in which each side, attempting to catch up with the other and influenced by the other, steadily increases its forces until the very numbers of weapons in inventory virtually by themselves cause a disastrous war, has strongly influenced academic strategists. From an examination of the strategic literature, it would appear that almost all theorists and many decision makers are agreed that the danger is real, and that policies which will avoid such a race must be pursued. The existence of the Arms Control and Disarmament Agency is, perhaps, the most dramatic manifestation of this belief. It was this kind of arms race which was meant by former

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<sup>14</sup> Harkabi, Y., *Nuclear War and Nuclear Peace*, Jerusalem, Israel: Defense Forces Publishing House, 1966, p. 60.

<sup>15</sup> Schelling, T., and Halperin, M., *Strategy and Arms Control*, New York: Twentieth Century Fund, 1961, p. 34.

Secretary McNamara when he referred to an "action-reaction arms race" in nuclear weapons, which he hoped would not be triggered by BMD.<sup>16</sup>

#### The Richardson Equations

To a great extent, the primary theory of self generated arms races is derived from the work of Lewis F. Richardson whose study of *Arms and Insecurity* quickly became a classic example of the application of mathematics to human behavior.<sup>17</sup> Richardson's basic premise was that arms races follow a logic of their own and can be modeled by suitable differential equations. He postulated such a model, which is summarized in Chart Five and went on to apply the data from the pre-World War I period to test its descriptive power. As shown in Volume II the model succeeds in describing the data quite well.

Examining the Richardson equations, we find that under certain easily imagined conditions the arms race can be decidedly unstable: that the model predicts ever increasing expenditures on both sides, with a tendency to accelerate the accumulation of weapons, until some terminal point is reached. Although it is seldom explicitly stated, many theorists suspect that this terminal state is war. However, when we attempt to apply the Richardson equations to modern arms budgets, a different result is obtained. Strategic arms budgets will reflect the enemy's expenditure rate, of course, but strategic power is no longer calculable in terms of economic resources consumed, battleships constructed, divisions under arms or force mobilization timetables. Nuclear weapons and new technology can upset all such calculations in qualitative effectiveness, while we have seen that quantitative increases do not tend to make deliberate war more probable.

#### Can There Be A Runaway Arms Race?

The history of the period prior to World War I shows an extremely complex political situation which led the German High Command to a tentative war decision in the Fall of 1913 because it appeared that Germany was falling behind in strategic power as measured in divisions. The defection of Rumania from the alliance was instrumental, in that this not only subtracted some fifteen divisions from the Central Powers' force structure but threatened their addition to the opposition. With France moving from one year conscription to three year terms of service, and Russia restoring the military power lost in the 1905 war, Germany found herself in a situation which to the General Staff was intolerable: the longer they waited, the further behind they were likely to be. Thus, when Austria was threatened, with the certainty that if Austria were destroyed forty divisions would be subtracted from the Central Powers' forces, and the possibility that some of those divisions would be added to the Russian army, there seemed to be no alternative to war.

<sup>16</sup> McNamara, Robert S., 1968 Budget Statement to House Armed Services Committee

<sup>17</sup> Richardson, L.F., *Arms and Insecurity* (Pittsburgh: Boxwood Press, 1960).

C H A R T F I V E

R I C H A R D S O N A R M S R A C E

THE BASIC EQUATIONS

- x = Nation X's Annual Arms Budget
- y = Nation Y's Annual Arms Budget
- a = Constant reflecting the effect that Y's armaments have on X's incentive to arm
- b = Constant reflecting the effect that X's armaments have on Y's incentive to arm
- m,n = Constants related to economic drain of arms expenditures
- g,h = Constants related to hostility of X and Y for each other

THEN:

$$\frac{dx}{dt} = ay - mx + g$$

$$\frac{dy}{dt} = bx - ny + h$$

REQUIREMENTS FOR STABILITY

In this system of equations, "stability" is defined by Richardson as:

$$\frac{dx}{dt} = 0 = \frac{dy}{dt}$$

which yields four cases:

- |     |                         |  |
|-----|-------------------------|--|
| I   | $mn > ab, g > 0, h > 0$ | There will be a stable balance                               |
| II  | $mn > ab, g < 0, h < 0$ | General and Complete Disarmament                             |
| III | $mn < ab, g > 0, h > 0$ | Runaway arms race  |
| IV  | $mn < ab, g < 0, h < 0$ | Becomes Case II or Case III, depending on initial conditions |

In the real world, most arms competitions have not ended with "runaway arms races" or total disarmament; at the same time, the rate of change of arms expenditures has not been zero.

Whether this situation was brought about by an arms race, or whether the arms race was caused by more fundamental factors, is not pertinent here. The fact is that this appears to be a situation in which an imbalance in armament levels brought about a war decision as one of the Powers decided that the risks of immediate war were less than the risk of waiting to fall further behind. The lesson is clear: the loser of the arms race has, in the world of gunpowder armies, an incentive to strike while he retains some strength; to have the war over with while he can yet give a good account of himself.

In addition, the winner of such an arms race could in theory have an incentive to strike: after all, he has built the weapons at enormous costs, and they were presumably intended for some purpose. It is possible, of course, that he intended to strike all along. On the other hand, there is no strong incentive for him to strike if *he had none before the race began*. That is, political objectives and national goals, rather than military fears, will govern his decision. The winning power in an arms race has more options than the loser. It is when the loser decides to catch up with him that he has a time-critical decision to make.

The incentives to race are, therefore, reasonably clear: one races because one thinks one can win; or one races because one is afraid the other side can win. Win is easily defined: it is a situation in which one side has sufficient superiority over the other to translate it into a bargaining or military advantage of some magnitude. At the ultimate, winning an arms race might allow nuclear supremacy to force a surrender decision.

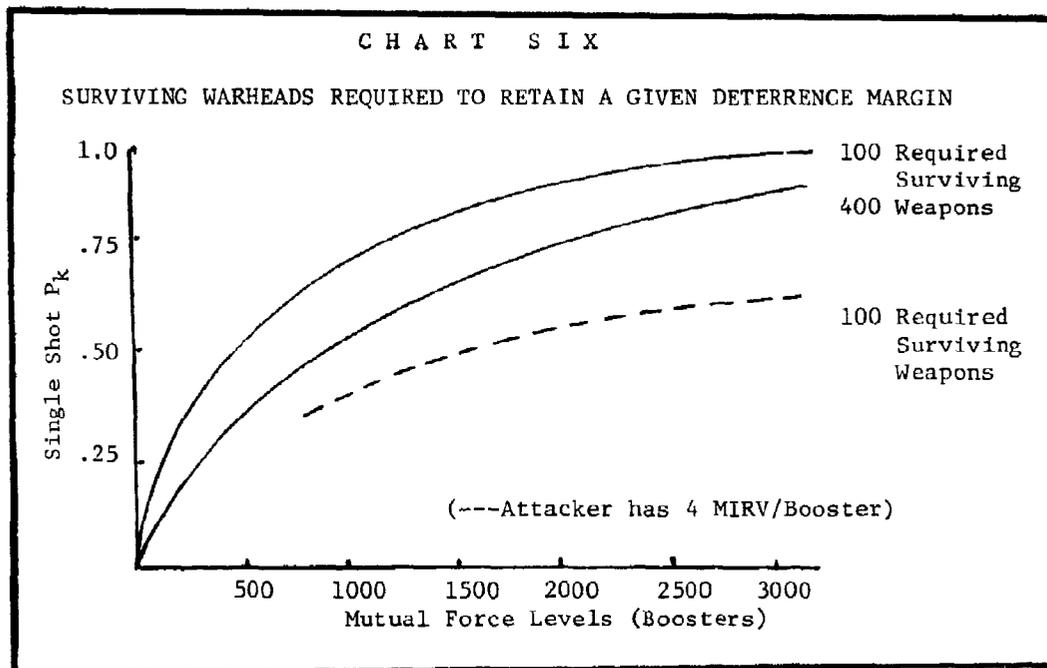
#### ARMS RACES IN THE NUCLEAR ERA

##### The Effect of the Arms Race at the Strategic Level

Whereas arms races may provide an incentive to strike when dealing with gunpowder weapons, the nuclear era has changed the character of the war. Gunpowder weapons are effective against each other; that is, the possessor of a large arsenal of conventional weapons is capable of defending himself against a similarly armed enemy, and of protecting his population and industry. The character of nuclear war is entirely different. Nuclear weapons may not be particularly effective against the enemy's weapons systems, and in any event need not be so to be sufficient to destroy the enemy's value systems. The dominance of offense over defense at the highest levels of violence changes the whole nature of an arms race with nuclear weapons.

We do not here imply that a nuclear arms race cannot result in the establishment by one side of a First Strike Capability; but it is evident that in the nuclear era it is rather difficult to do through numbers alone. Furthermore, we have seen that mutual increases in numbers of weapons add to the stability of deterrence: that as the mutual force levels go higher and higher, the incentive to strike falls rapidly. Type One stability thus increases as the pace of the arms race grows faster. The more weapons added to the inventory on each side, the less

incentive to use them. This can in part be explained by Chart Six which shows the kill probability required to reduce an enemy to some given residual level as a function of the number of missiles on each side. The marginal utility of additional weapons is constantly decreasing, provided that the other side is keeping pace with your own; and of course the marginal utility of weapons is decreasing for the enemy as well. Thus, without some sudden change in the nature of the conflict, the tendency is for the arms race to damp out, not accelerate. This is particularly true in the nuclear era, as weapons are highly expensive. The economic drains of constant force increases are sufficient to provide a powerful incentive to halt the race.



Therefore, the incentives to undertake an arms race in the nuclear era are different from those of the gunpowder arms race. It remains true in general that one races only when one thinks winning is possible; but, PROVIDED THE OTHER SIDE DOES NOT MAKE MISTAKES, winning by numbers is highly unlikely in the nuclear era. Rather than concentrate on numbers of weapons, therefore, the modern arms racer will concentrate on technological developments; on attempting to change the *effective* levels of his forces rather than simply increasing numbers.

The major stimulus to an arms race in the nuclear world, therefore, is the observation that the enemy is NOT keeping pace: that he is not deploying the latest technological advances, or has not even discovered them; or that he is willing greatly to fall behind in numbers. When there is a hope for winning, arms races may come about; when there is none, the incentive structure changes radically.

## Technology and the Arms Race

### Change and Improvement Are Inevitable

Although the incentive for increasing the quantity of weapons in the inventory is self-damping, this is not true for qualitative changes, which can give one nation a decisive, if temporary, advantage.<sup>18</sup> In this race, intentions are of less importance because normal secrecy between nations will prevent each side from knowing precisely what improvements the other has made; since it must be assumed that he will have made all available ones, each side will be compelled to do likewise to preserve the balance, in the absence of evidence that the other side has refrained from updating his forces. Obviously, such evidence is not likely to be reliable. Even if some evidence were obtainable, the stakes are so high that each nation would be tempted to "cheat" merely as insurance against the other.

Thus, there are strong incentives for constant updating of primary strategic weapons. In addition, force improvement will almost always occur with force replacement; that is, replacement of a no longer reliable or aged missile presents an opportunity to install a later model; one which takes advantage of technical discoveries made since the installation of the old one. Whether these improvements have been intentional, or result as fall-out from an entirely different program, rational decision makers will take advantage of them.

Force capabilities may improve though no action is taken at all. The best example of this is in the accuracy of the ICBM, which underwent dramatic improvements from 1964 to 1968 simply as a result of reduction in geodetic and geophysical errors. Our knowledge of geodesy came from the space program and the International Geophysical Year, and would have influenced the missile program even if we had done no other research in guidance technology.

### Force Modernization Is Not An Arms Race

Thus, the requirement to replace damaged or aged systems, plus the normal march of technology, will result in constant improvements in force capabilities. When both sides take advantage of these improvements the result is not destabilizing, and may add to stability by increasing the survivability of the systems or the effectiveness of surviving weapons. Mutual force modernization is not an arms race. Unilateral modernization by a disturber power is, of course, destabilizing.

A decision to go to an entirely new regime of technology may not be destabilizing, and may help to stabilize an otherwise dangerous imbalance. Without knowledge of the numbers of ICBM deployed by the enemy, a nation

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<sup>18</sup> The advent of nuclear weapons, then of thermonuclear weapons and finally the ICBM, in turn gave the U.S. either actual or potential supremacy for a limited time.

may well find itself compelled to add larger numbers to the inventory. Although this will not result in larger incentives to strike, such can certainly be expensive and may force reduction in much needed weapons and defenses of other types. Lack of weapons useful in other regimes of conflict certainly can be destabilizing. In the present case where there is no symmetry of information, the United States has no ready source of information concerning Soviet ICBM inventories, and would therefore have no choice but to deploy large numbers of weapons.

However, the decision to construct space surveillance systems and also to improve our aerial reconnaissance capabilities gave U.S. planners an irreplaceable source of information about the Soviet weapons establishment. Thus, expansion into space -- itself made possible by ICBM technology -- was a stabilizing move on the part of the U.S., tending to redress the imbalance in information gathering capabilities available to the two powers.

#### The Most Unstable Arms Race Is A One-Sided Race

The balance of power in Europe was destroyed in the years 1936 - 1939, largely through inaction by France and England. The immediate cause of instability was Hitler's decision to rearm Germany and exert German influence and power throughout Europe. This intention would have been useless if his military power had been matched by that of France and England. However, the Entente did little to match the growing strength of the Wehrmacht until too late, presenting Hitler with a unique and fleeting opportunity in 1939. It is no great wonder that he took advantage of it.<sup>19</sup>

The Anglo-French failure to maintain the balance of power came as a result of two separate inactions: the failure to engage in the arms race quantitatively; and failure to engage qualitatively. Of the two, the latter was the most important factor. These decisions were made early in the thirties; by the time they were rescinded, it was too late to save the balance of power. German forces did not greatly outnumber those of the Allies (and had the Czech divisions not been swallowed after Munich, would not have outnumbered them at all); but German aircraft outnumbered the Allied forces. Although German armor was not technically superior to that of the Anglo-French, German understanding of armored warfare was incomparably greater. This knowledge was gained as a result of actual construction and operational experience with the new weapons, which led to far superior German doctrines and plans, even though the original concept of armored divisions was British. The Roman maxim of state read, "If you would have peace, be prepared for war." A modern restatement says, "If you would have peace, understand war."<sup>20</sup> The Anglo-French did neither.

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<sup>19</sup> Newman, Wm. J., *The Balance of Power in the Interwar Years, 1919-1939*. (New York: Random House, 1968).

<sup>20</sup> Kahn, Herman, *On Thermonuclear War*, (Princeton: University Press, 1959).

It is in general not the arms race which preserves the strategic equilibrium that gets out of hand and causes war; it is rather the arms race which allows an aggressor superiority, with a chance at supremacy, which goads him on to greater effort, and provides incentive to strike if the moment is optimum. Failure to engage in restoring the balance of strategic forces through modernization can create a critical instability in the nuclear era.

It should be recalled that in the modern world, capabilities are often more important than intentions; that is, they can create incentives. This can be particularly true in nations whose forms of government provide for disorderly transitions of power. For example, if the Soviet Union found herself with the capability of a successful first strike against the United States, no matter the intentions of the government in power at that moment there would be a faction demanding action. Whether that faction could seize power or not is problematical; but there is obviously a chance that they could. Certainly something of the sort took place prior to the Czech crisis. Thus, the hope of internal success -- and the urge to keep a decadent regime alive -- can generate the incentive to engage in an arms race, and to exploit a temporary supremacy gained through technological surprises.

On the other hand, the self-damping tendencies of purely *quantitative* arms races tend to discourage entry into an arms race in which there appears to be little chance of winning. The quantitative action-reaction type of arms race, which may be found in the history of the gunpowder era, simply does not exist in that form in the nuclear regime. In the unending war of technology in which both sides dare not fall behind, both essentially "react" to the action of science.

One highly stabilizing move, then, would be for a side which enjoys *economic dominance* to announce a definite policy of maintaining superiority,<sup>21</sup> and demonstrate that it intends to carry it out. This acts to remove the incentive for either side to engage in an arms race in the quantitative sphere, while the reasonably large numbers of weapons in the inventory<sup>22</sup> would render technological surprises from either side less potentially destabilizing. Note that this policy is credibly open only to a power enjoying economic dominance; that is, only the power that can afford to outbuild his enemy can make the other believe he can and will carry out this policy.

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<sup>21</sup> Superiority implies a definite advantage but not supremacy; both sides retain the capability of imposing normally unacceptable damage under any circumstances, but the superior side enjoys a larger deterrent margin.

<sup>22</sup> These forces would presumably be generated by the period in which the resolve of the powers were tested. It is possible, of course, that large numbers would not be generated.

## S T A B I L I T Y   A N D   A G G R E S S I O N

## THE INFLUENCE OF NUCLEAR WEAPONS

## NUCLEAR SUPERIORITY AND STABILITY

Stability at the level of Central Nuclear War has an effect on stability at all other levels of conflict. As the Powers enter the era of thermo-nuclear plenty, threats to use the SOF in a deliberate strike against another nuclear Power grow less credible as a means of deterring military conquest and other forms of aggression. Since the end of the 1938-1945 war, the United States has employed a wide variety of strategies and strategic devices to impose stability on an unsettled world.

The era immediately following World War II was a vast disappointment to the United States. The war with the resulting formation of the United Nations was expected by many to create a new and stable world under law, in which national threats of force would play little part: where force was to be threatened, its use would be by authorized international authorities. There were even plans to put the United States nuclear monopoly at the service of an international body dedicated to the preservation of peace and order.

Soviet aggressiveness soon ended this dream of automatic world order and brought the nation to the realization that preservation of the peace required an armed peace-maker. As a direct result of the Czechoslovak crisis of 1948, NATO was formed for the protection of Europe,<sup>23</sup> and U.S. nuclear supremacy pledged as part of the guarantee; indeed, NATO made little or no sense apart from the nuclear pledges, which included a first tacit, then explicit, threat to initiate nuclear warfare at the highest level in response to an attack on U.S. allies. When John Foster Dulles announced a policy of massive retaliation at a time and place of our own choosing, he merely stated openly what had been understood all along: the United States had no intention of fighting for the defense of her European allies at a purely conventional level, but would escalate the conflict directly to a regime of violence more favorable to the West.

This threat of violence was highly effective. It is impossible, of course, to say precisely what actions preserved Europe from communist takeovers, and doubtless all of the policies of the U.S. including Point Four, the Truman Doctrine, the Marshall Plan, and other military and non-military measures were necessary and effective. Examining the situation with the benefit of hindsight, however, it appears obvious that something restrained the Soviet Union from acting at a time when the Soviet Army enjoyed an overwhelming local supremacy. The existence of nuclear

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<sup>23</sup> An excellent brief history of the background and doctrines of NATO from 1945 to 1966 is given in General Andre Beaufre's *NATO and Europe* (New York: Vintage, 1966).

weapons seems to have contributed to stability in those areas where their use seemed credible.

Well after the end of the U.S. nuclear monopoly, U.S. superiority rendered the threat to escalate the level of conflict to the thermonuclear regime, if not credible, then "not incredible;" again, the existence and possible use of these weapons tended to exert a stabilizing influence on other kinds of conflict. To the extent that there was a real fear of nuclear war -- that is, that the balance of terror was unstable -- there was a reciprocal strengthening of stability against aggressive use of force on the conventional level. Many analysts believe that the fear of nuclear war is the only thing which prevented the outbreak of hostilities in the fifties; that is, had there been no nuclear weapons, there would have been another massive conflict over Europe.

Examining the past and present capabilities for the *defense* of Europe and other areas contiguous to the Soviet borders, one obvious fact stands out: to the extent that military deterrence played any role in the stabilization of the situation, this was accomplished more through the threat to escalate the conflict to the nuclear regime than by any actual gunpowder capability to deny territory to the Soviet Army. NATO has never been able to muster more than twenty-six divisions,<sup>24</sup> not all at full strength, to hold an area stretching from the Finmark to the Caucasus borders of Turkey. In the central part of the treaty area, NATO's best disposition of forces for holding east of the Rhine results in division fronts of over thirty miles, while a pullback to the Rhine with the non-German elements of NATO hardly improves the situation. The Soviets and their allies, by contrast, can mobilize up to a hundred divisions, and concentrate great force on a very small front.<sup>25</sup>

#### LIMITED WARS

The period since 1945 has also been marked with a phenomenon rare in American history; war fought in something less than an all-out manner. To the United States, war has always been, in theory, an ultimate evil, something not to be engaged in for less than a holy cause; thus, anyone provoking the United States into war is evil, deserving little beyond mercy in defeat. American wars in this century have been all-out.

Thus, the phenomenon of a war fought with less than the full potential of American might was not predictable in advance to the careful student of U.S. history, and there is some evidence that the communists were as surprised by the direct confrontation with the U.S. in Korea as the United States was by the invasion of the Inman Gun.<sup>26</sup>

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<sup>24</sup> cf. Beaufre, *NATO and Europe* as well as annual issues of *The Military Balance*, (London: Institute for Strategic Studies.)

<sup>25</sup> *The Military Balance*, 1968-69, (London: Institute for Strategic Studies).

<sup>26</sup> North Korean People's Army.

The Korean War was limited to non-nuclear weapons by factors not likely to be repeated in the future, including U.S. ignorance of the effectiveness of nuclear devices; a totally unsatisfactory method of target selection based on the premise that nuclear warheads were both rare and expensive; and a lack of targets thought valuable enough to justify the weapons. Although the factors were unlikely to be repeated, there was created a "tradition of non-use" which held over to the present time.<sup>27</sup>

The United States won the Korean War on the battlefield, totally defeating the North Koreans, and successfully engaging the Chinese Communist Expeditionary Force in a war of attrition which led not only to great military problems, but even to catastrophic effects on Chinese industry through USAF destruction of irreplaceable rolling stock crossing the Yalu River.<sup>28</sup> Lack of experience in the techniques of negotiating with an enemy not yet prostrate robbed the U.S. of many of the fruits of the military victory already won; in particular, the war was not made a sufficiently punishing experience to present an absolute deterrent to future expeditions of the same kind.

For all the problems experienced in the negotiation phase of the war, which was finally brought to end only through threats of escalation, the Korean War was more punishing to the enemy than to the United States, and served as a stabilizing factor in the Asian area. The same may not be true of the war in Vietnam. America's will seems to the enemy to be less than steady in that conflict, and the domestic political consequences of the longest of all American wars make it obvious that any President will be reluctant to commit U.S. troops and prestige to another war of attrition. At the same time, it is possible that the outcome of war will be less than devastating to the initiators of the aggression, thus providing them with little incentive to refrain in future while giving the United States considerable cause to reconsider her commitments to stability.

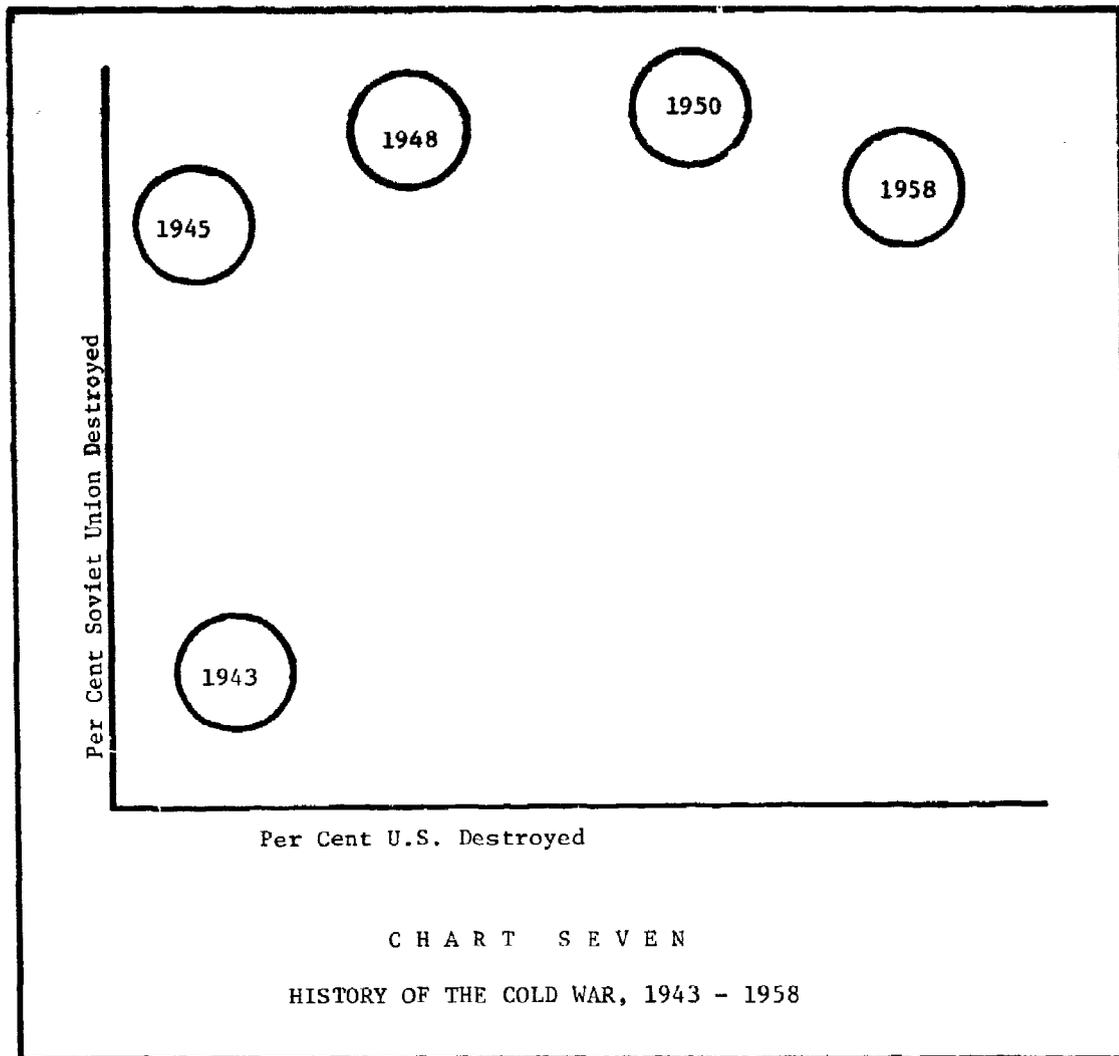
#### THE END OF SUPREMACY

Chart Seven shows a compact history of the Cold War as a function of probable U.S. and Soviet casualties in the event of war between them. During the period 1945 - 1958, the United States enjoyed absolute supremacy for a period of years, and a potential supremacy exploitable by major effort for much of the time involved. By 1968, however, U.S. supremacy was gone, not to be recoverable in any predictable manner. There remains the question of superiority; or indeed, whether in the nuclear era superiority is a meaningful concept.

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<sup>27</sup> Brodie, Bernard, *Escalation and the Nuclear Option* (Princeton: University Press, 1966).

<sup>28</sup> cf. Fehrenback, T.R. *This Kind of War* (New York: Pocket Books, Inc., 1964).



The Cold War has been a history of the loss of U.S. supremacy; in the new era there is speculation that the U.S. has lost superiority as well, and may face a time of Soviet superiority. The official doctrine has been that superiority is meaningless; and we are in an era of mutual sufficiency. Yet, each increase in Soviet power relative to the U.S. has changed the strategic context. Soviet presence in the Mediterranean affects the entire Near East. The suspicion remains that there is no "sufficiency," and superiority is as meaningful as ever.

#### MUTUAL SUFFICIENCY AND AGGRESSION

#### BALANCE OF TERROR AND BALANCE OF POWER: DETERRENCE AND ACTION

Action and deterrence are antithetical; the capability to enforce one's will is negated by deterrent threats. In the modern era, there is a tendency for action and deterrence to coalesce into different regimes

of violence and conflict, and for each to have less and less effect on the other. This has interesting consequence for stability.

That is, as long as it is credible to react to major acts of aggression by launching the SOF, the balance of terror affects the capability of an opponent to work his will on others, and to increase his power through military or pseudo-military means. In the era of mutual sufficiency, however, the "Assured Destruction" capabilities of each side render the threat to initiate action with the SOF incredible. Thus, what can be accomplished with coercive war-fighting forces employed for direct action, with pseudo-military and political warfare, and with economic strategies assumes a larger and larger importance.

Thus, under the shelter of the balance of terror, a "balance of power" appears. One immediate consequence is that powers other than the super-powers assume importance, and must be consulted. As the prospect of Central Nuclear War vanishes, the possibility of some more limited form of combat fought on other states' territory, and requiring close inter-allied cooperation, becomes all too real. There are several approaches to dealing with that possibility.

The American approach, at least with regard to Europe, has been to state that we have and will retain the capability to successfully fight a war in Europe, with or without nuclear weapons; and to encourage the NATO allies to deploy more divisions for their own defense. At the same time, the American contribution to this postulated limited war is more and more circumscribed with the withdrawal of large numbers of U.S. troops from their European garrison stations. Their places are presumably to be kept for them by the deployment of material to depots in Europe; the men will be air-lifted from the U.S. and mated with their armor and other weapons whenever there is a serious threat.

The Europeans, and particularly the Germans, have adopted an altogether different strategy. Their intent is to employ nuclear weapons at the first clear sign of invasion of their territory, and force the escalation of the war to unacceptably high levels within hours of its outbreak. If possible, they would prefer that the war automatically and uncontrollably escalate to Central Nuclear War; and that everyone clearly understand that this would be the inevitable result of hostilities against them. The French have to a lesser extent supported this strategy, and have served notice that an attack on the French homeland will inevitably bring about nuclear strikes against the homeland of the aggressor.

The reason for the divergence of European and American approaches is simple to understand, but very difficult to reconcile. The war would, after all, be fought on European territory. From the European view, it is better, then, that it not be fought at all; and the best way to insure *that* is to make it certain that an aggressor would be destroyed, along with everyone else. The Americans accept this logic, then add, "But, suppose after all, war *does* break out? We must act to control escalation and limit damage." The Europeans suspect the Americans of meaning "limit damage by limiting it to the European theatre;" talk of "sanctuaries" does not reassure them.

### CREDIBLE OPTIONS AND FORCE IN BEING

There are, then, two approaches to stabilizing a situation in the kind of imbalance which faces us in Europe: developing and deploying a force capable of meeting and defeating the aggressor; or coupling the defense of Europe to our own strategic umbrella, thus extending our Type One deterrent. Each approach has advantages and serious difficulties.

The American approach is more credible, but also more expensive, requiring continuous maintenance of forces visibly capable of absorbing the surprise attack of a very large enemy. Its advantage is that if war comes, it does not necessarily bring disaster to more than a confined area; its chief disadvantage is that by removing the horror from the war by limiting damage, the war is made more likely.

The European approach, by contrast, is very much less expensive, requiring far smaller forces in being, but is less credible. This leads to a search for means to add credibility to what is, in fact, an irrational threat. At the ultimate limit of credibility, the Europeans could be given what they choose to call "nuclear responsibility," but which U.S. analysts refer to as a "nuclear trigger." Steps more palatable to the United States include dispersion of nuclear weapons to American battle-field commanders at increasingly lower levels of command; border installation of "nuclear land mines;" and conversion of most of the NATO forces into all-atomic battle formations behind a thin screen of constabulary. This approach has as its major advantage that if it works, no war at all will occur, thus obtaining the ultimate in damage limiting; the obvious disadvantage is that if deterrence fails and the coupling with the U.S. SOF has been in fact made, (and the credibility of this coupling is a major stabilizing factor in this strategy) the disaster is total.

It should be noted that both these approaches rely upon forces in being. There is no possibility of slow mobilization to meet an enemy threat; indeed, after the rapid buildup and invasion of Czechoslovakia,<sup>29</sup> it is doubtful whether the "prepositioned equipment" of U.S. forces in Europe has any deterrent -- and thus stabilizing -- value at all. The Soviets must believe that they could capture this equipment, or out-flank the positions the airlifted Americans would be forced to assume, before the divisions achieved significant combat effectiveness.

Of all approaches to stability, the one least likely to succeed is a doctrine of war-fighting, coupled with insufficient capability to fight the war. Under those circumstances, there is almost no stability at all. There may or may not be aggression, depending on the enemy's motivation structure; but there can be no stability imposed by military factors. Stability requires both credible options and forces in being.

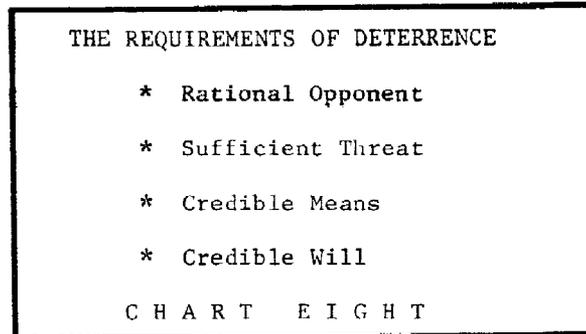
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<sup>29</sup> There is some question as to whether the United States failed to notice the massive concentration of WTO forces against Czechoslovakia or simply failed to react to it.

## INCREASING STABILITY AGAINST AGGRESSION

### THE NATURE OF DETERRENCE AND STABILITY

Military stability is a form of deterrence, and obeys the same logic as other deterrent situations. In particular, the four requirements for deterrence must be met, as shown in Chart Eight.



There are other kinds of stable relationships between states. The lack of military parity between the United States and Canada does not totally dominate relationships between the countries. Where *all* states are dedicated to the preservation of the *status quo*, or even to a dynamic balance of power, the military forces can be highly imbalanced before the system becomes critical. An *equilibrium* of power, however, contributes strongly to the stability of international relations. When neither side is capable of decisive action in a given region, sphere, or area of interest, there is a much higher probability that changes will be slow and orderly than in the situation in which only self restraint prevents one side or the other from ending negotiations by *coup de main*.

This paper is concerned with stability as a goal of national strategic planning, and concentrates on military and para-military implications and requirements for maintenance of stability; which is to say the dynamic requirements for deterrent where possible, and those actions which make for increasing the stability of deterrence in future whenever stability is upset. For the purposes of this paper, we have taken the following as a working definition: a system of international relationships is stable whenever there are no sudden, unexpected and unilaterally undesired changes in the equilibria of power taking place, and none probable in the foreseeable future. When the probability of sudden changes in power relationships increases, we say that stability decreases.

Thus, stability is brought about in the bi-lateral case by an equilibrium relationship: NOT A RELATIONSHIP OF PARITY. Exact equality may, in fact, be extremely destabilizing, depending upon the commitments, objectives, goals, and will power of the participants. Power is a product of means and will, modified by objectives and risks. Where the objectives and will of two participants are equal, stability may require that

there also be relative equality of means; but when the objectives and will diverge, there will be changes in the required force capabilities. Lower will and a reputation for not taking risks will raise the force requirements necessary to balance the equation.

In the presence of a powerful disturber, stability requires that a strong stabilizer exist. This is an obvious but non-trivial conclusion. In part, the stabilizer must act as a "world policeman." This function may be collectivized to some extent, and there have been numerous attempts to internationalize the stabilizing function through such collective security arrangements as the United Nations. In every case, however, a serious imbalance of power resulted, and by its very nature must exist: that is, a collective organization always has conflicting objectives, and a less credible will to employ its force than does a single nation of comparable power; yet international organizations always have less power than the Great Powers.

The stabilizer may be an alliance such as SEATO, NATO, or the Organization of American States. Again, however, the will of this structure and what was once called the "principle of the unity of command" is lacking, although this may to some extent be compensated by the presence of a strong alliance leader whose will to action is more credible.

In general, it is obvious that the "stabilizer" requires *superiority* over the "disturber," simply because the "disturber" chooses the time and place of the conflict, and will not initiate the contest until he has local supremacy. The "disturber," then, is always in the classic position of holding "interior lines" against the stabilizer.

The requirements for stability will change depending upon whether the objective is static or dynamic stability: that is, if the "stabilizer" is willing to adopt a flexible strategy, never conceding the finality of any change in force relationships and always holding open the possibility that the "disturber" will find himself the victim of calculated punishment; that changes in the equilibrium may be redressed through counter-attack rather than resistance at the point of aggression; then smaller force levels may be required to create a credible deterrent. Where, however, static stability is adopted as a goal of national strategic planning, the stabilizer must be resigned to maintaining superiority over his enemies, and be prepared to engage in contests at a time and place of the enemy's choosing. The nature of the required superiority may change, and is to some extent a variable under the control of the participants. The fact of superiority is not.

For there to be stability against aggression, the stabilizer -- alliance, collective organization, or nation -- must hold superiority over the disturber and must be able to fulfill the requirements for deterrence.

## TACTICAL NUCLEAR WEAPONS AND THE STABILITY OF VITAL AREAS

When the nuclear level was reached, we moved from a war strategy to a strategy of potential threat; in other words, to a strategy of *deterrence*.

The consequences of the existence of this vast threat are considerable. It becomes so difficult to make the threat credible in the case of any stake not truly vital, that its stabilizing influence is effective only against the more traditional forms of warfare; these it prevents almost completely. As a result, peace is far more stable than before the advent of the nuclear weapon. But peace has no longer the absolute character it had in the last century; today it is possible to hurl insults at a nation, burn down its embassy, arrest its ships, send hired assassins into its country or give almost open support to political parties without war breaking out; formerly all this would have been unthinkable. Peace between contending nations has become "war in peacetime" or Cold War.

Furthermore, peace on the nuclear level is so stable that in spite of the existence of the nuclear weapon, we have in the last fifteen years seen a number of conventional wars of greater or lesser intensity and with a greater or lesser admixture of cold war and subversive practices.<sup>30</sup>

\* \* \*

The disappearance of nuclear deterrence would be a frightful catastrophe...for then we should lose the benefit of the stability created by the atom in our rapidly evolving world.<sup>31</sup>

\* \* \*

It is essential for the conventional and nuclear levels to be firmly linked by the threat of employment of tactical nuclear weapons. Only by paying this price -- and accepting the risk -- can nuclear deterrence be made fully effective at the conventional level.<sup>32</sup>

The preceding passages summarize the logic of the European view of defense against aggression in vital areas. Repeated efforts by the United States have failed to convince our NATO allies that they should greatly expand their gunpowder capabilities in order to provide defense at a

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<sup>30</sup> Beaufre, Andre, *Deterrence and Strategy*, (New York: Praeger, 1966), pp. 29-30.

<sup>31</sup> *Ibid.*, p. 40.

<sup>32</sup> *Ibid.*, p. 63.

non-nuclear level. It has been suggested by certain American observers that this reluctance is due to a natural desire to save money; that the Europeans are content to let the United States pay for their defense.

There may or may not be some element of miserliness in the repeated reluctance of Europe to provide ground troops for defense, but this is hardly the primary reason. From the European point of view, a capability for gunpowder defense implies a willingness to use it, which is to say, an unwillingness to escalate the war to nuclear levels. The larger the gunpowder army, the less firm the link between the conventional and nuclear levels, and the *more possible the war*; which is to say, the less stable the deterrence against aggression. It is true that the war will be less frightening than would a nuclear contest; but it is precisely that which makes it more likely. Better, say those on whose territory it will be fought, to deter it by extending the umbrella of the strategic deterrent over Europe: to include Europe within Type One Stability. In this view, a large conventional capability in Europe is destabilizing.<sup>33</sup>

There has been no reluctance on the part of Europe to pay for *nuclear* capabilities; indeed, one argument used against the French national deterrent was that it would be too expensive for the French.<sup>34</sup> The reluctance in this case was on the part of the Americans. We have gone to great lengths to retain a nuclear monopoly in the tactical weapons regime. If the United States wishes to see an increase in the European defense budgets, the Europeans have always been ready to purchase and maintain systems for nuclear defense.

A credible threat to use tactical nuclear weapons appears to be the only method for restoring equilibrium to modern Europe in the present decade. The United States is unlikely to provide the gunpowder army necessary for the conventional defense of Europe,<sup>35</sup> and the Europeans have made it very clear that they will not do so. The Central Nuclear War regime of conflict appears to be stable, with this stability increasing, thus rendering threats to use the SOF against the enemy homeland less and less credible.

If there is no capability for conventional defense, and none for deterrence through the SOF, then there remains only a credible threat to employ tactical nuclear weapons. These have two advantages: they raise the risk of escalation to still higher levels; and they retard the enemy field army's advances, so that there is less of the character of *fait*

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<sup>33</sup> Moreover, if the war goes nuclear a conventionally trained force will be useless. Those who believe the war must be nuclear point out that a gunpowder force cannot win.

<sup>34</sup> A specious argument, of course, as the United States had it within her power to remove or greatly reduce the cost to France through information exchange; thus DeGaulle was hardly impressed by American sympathy for his defense budget problems.

<sup>35</sup> And in fact is politically *unable* to do so.

*accomplish* to be brought to the bargaining table. Of the two advantages, the first is the most important: a credible threat to use tactical nuclear weapons will in fact link stability against aggression to the stability of the nuclear deterrent at the highest levels. How firm this link will be is not discoverable, and it is greatly to the advantage of the deterrent that the discovery not be made.<sup>36</sup>

In fact, one argument for the non-use of tactical nuclear weapons outside Europe is that it keeps them rare and mysterious, thus dramatically demonstrating the importance of our European allies, and serving to keep up the credibility of the link between Europe and the thermonuclear deterrent. Whether the advantages of non-use outweigh the disadvantages cannot be determined with finality; it should be noted that use of tactical weapons elsewhere makes their use for defense of Europe absolutely credible. Leaving out other considerations, perhaps the optimum policy would be use of nuclear weapons in combat *somewhere* to show that they *will in fact be used*; then restricting them to truly vital areas to preserve the link to the SOF. The place of first use must be chosen with care, of course.

Tactical nuclear weapons also operate to change the deterrent situation in another manner; their use will reduce the value of the target area, and thus the incentive for seizing it. There is a kind of grim humor in the situation, reminiscent of the fictional heroines who would rather suffer death than dishonor; but the technique does work, so long as it is credible.

It is difficult to see how the aggressor would occupy a country defended with tactical weapons. If he concentrated his occupation forces as he has in Czechoslovakia, they would be prime targets; if he chose to disperse them, they would be subject to acts of terrorism, political persuasion, or desertion. The problems of an army of occupation which cannot concentrate are immense indeed.

#### CONTRIBUTION OF ALLIES TO STABILITY AGAINST AGGRESSION

In examining situations to be stabilized against aggression, an obvious division asserts itself; those areas of sufficient value to be included under the extended deterrence of the primary nuclear umbrella, and those which are not. The areas or countries in the first category may again be divided into those under immediate threat of overwhelming aggression, and those which are not. Europe is an obvious case of an area important enough to be included in extended deterrence, and unable to defend herself against the current threat. Canada is an example of a nation of primary importance, but not threatened.

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<sup>36</sup> Possession of a real capability to retard or even defeat an advancing field army is also very important, particularly if deterrence fails.

Allies not threatened need not concern us here. Those located in areas of extreme peril and worth including under the nuclear umbrella are perhaps best defended by a credible threat to employ tactical nuclear weapons. There remain allies threatened, but which do not fall under the primary deterrent umbrella.

These nations must be defended, and a real capability for defense must exist before any stability can be imposed in the face of a disturber bent on aggression. The required defense capability will vary with the threat, but it is always increasing.<sup>37</sup> An important point to note, however, is that primary allies -- such as the Europeans -- may reasonably be asked to contribute to this defense, provided that the nuclear deterrent umbrella has been extended to them. Indeed, their act of cooperation in stabilizing less important areas increases the credibility of the extension of the nuclear deterrent to include them. Nothing serves to show the validity of a proclaimed alliance more than mutual sacrifices for a common goal.

Whereas the construction of gunpowder capabilities for defense of Europe lowers the credibility of the extended deterrence over Europe, there is no corresponding reason why Europe cannot construct and maintain gunpowder or multi-purpose forces for use in other areas. Furthermore, these may follow the traditional patterns of expertise of these powers: Britain may revive the Royal Navy, France the Paratroops and Legions, other nations contributing special forces such as mountaineers and sappers. One obviously useful example would be seaborne forces which could contribute to nuclear defense of Europe as well as the general war fighting capability of the West.

The existence of European naval and marine forces would not lower the credibility of the deterrent extended to Europe; would be capable of participating in the tactical nuclear defense of Europe; and could be greatly useful in stabilizing more remote areas. The Europeans would also be in a position of actively contributing to the alliance, thus guaranteeing them a larger say, and incidentally forcing much needed revisions of the NATO command and general staff structures.

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<sup>37</sup> Note that we are accustomed to regard the Soviet Union as unable to exert power directly in areas not contiguous to her borders. This situation is changing rapidly, and to the extent that the Soviets act as disturbers, the change is highly destabilizing.

ESCALATION, DETERRENCE, AND STABILITY

ESCALATION

WHAT IS ESCALATION?

Escalation is used loosely for any growth in war or conflict: qualitative, the introduction of more powerful weapons; quantitative, increase in intensity; locale, spreading. It is the exceeding of any of the limiting factors in war.

The prohibition of all use of nuclear weapons is an obvious boundary, a qualitative restriction resembling mutual abstention from the use of gas. But there appears to be no possibility of a stable quantitative restriction. For lack of a clearcut boundary, the employment of tactical nuclear weapons creates the danger that the losing side may introduce weapons of greater magnitude in order to restore the balance, and that this process may spiral. We would thus find ourselves in a rising scale of violence through the use of weapons of greater and greater magnitude. This is escalation.

The prima facie danger of mutual destruction would motivate both sides to halt this progress toward catastrophe, as arresting escalation is a mutual interest. But for lack of an obvious level or point at which they can halt, the two sides might continue skidding into all-out nuclear war.<sup>38</sup>

\* \* \*

In the present situation, when the retaliatory forces are partially invulnerable, the balance of *probability* is in favor of stability. At this time, therefore, it may be anticipated that limited employment of nuclear weapons would not lead to escalation [to the highest levels]; this is a reason both for satisfaction and anxiety, since the threat of escalation plays a stabilizing role and its absence may make possible serious collisions at the cold war and even at the conventional level, thereby producing fresh risks of escalation. Fortunately there is no certainty that this stability will continue.

Escalation does not result from some sort of automatic mechanical process but it may be produced by the combined effect of two overlapping errors in manoeuvre: an over-bold action countered by too elemental a response. Escalation is therefore not impossible. The experience of the Cuba crisis however, when

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<sup>38</sup> Harkabi, Y., *Nuclear War and Nuclear Peace*, p.106

each side gave proof of a high level of caution and realism, justifies the conclusion that *escalation is becoming less and less likely.*<sup>39</sup>

The fear of escalation is said to have played an important part in determining United States strategy in Vietnam; it dominates the thinking of some analysts and strategists. Those analysts who are greatly concerned about escalation always use the term to mean escalation to the highest levels of nuclear exchange, although they will then occasionally apply it to the doubling of the number of ground troops committed to a strictly conventional war. This inconsistency is hardly surprising, but it leads to confusion.

It is obvious that there are many kinds of escalation, as there are many levels of conflict. Not all lead inevitably from one to another. The employment of helicopter borne troops against guerrilla terrorists is an escalation of the conflict, but it can hardly be said to be destabilizing, or lead to a thermonuclear exchange.

The effect of escalation may be highly stabilizing. When East African troops revolted against the government of Kenya, the British intervention from Aden was certainly an escalation, but this timely and effective restoration of the legitimate government did much to stabilize the entire region. When a stabilizer power employs a higher level of violence to oppose a disturber, and uses his power to put the situation back to normal, it is obvious that escalation has exerted a stabilizing effect. On the other hand, if a disturber power supports a puppet front to enable it to go from guerilla warfare to mobile warfare in attacking its neighbors, this escalation is destabilizing. At least at the lower levels of conflict, there is no simple relationship between escalation and stability, and a definition of stability in terms of escalation makes no sense.

Even at the highest levels of violence, the threat of escalation may have a stabilizing or a destabilizing effect, depending upon who employs it, how credible it is, and what objectives are sought. We note that in a previous section it was demonstrated that the threat of escalation to an unacceptable level through the defense of Europe with tactical nuclear weapons could exert a highly stabilizing influence; to the extent that the threat of escalation will couple the conventional regimes of conflict to the (already stable) Central Nuclear War regime, the fear of escalation is beneficial to a stabilizing power.

#### IS ESCALATION AUTOMATIC?

At the lower levels of conflict, it is easy to construct a scenario in which escalation takes place without knowledge or consent of national commanders. It is more difficult to imagine this situation at the higher levels, and almost impossible to believe when considering thermonuclear exchanges. The gradual increase in weapons power until

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<sup>39</sup> Beaufre, Andre, *Deterrence and Strategy*, p.70.

the thermonuclear exchange is upon the participants without their knowing it makes for good fiction, but is extremely unlikely in the real world.

It is far easier to imagine central war beginning as a result of a deliberate policy decision than as the consequence of a mechanical *deus ex machina*. Yet, the strategic nuclear balance is stable and liable to remain so. One of the major problems involved in Type Two Stability is this stability on the upper levels of violence. It is precisely because threats to launch the SOF are not credible that other means of defense of allies must be found.

#### National Deterrents

The simplest of these is to insure automatic escalation through shared nuclear responsibilities as requested by our NATO allies. This could be relinquishment of absolute control over some U.S. systems and warheads. This policy has always been rejected by the United States, partly on the theoretical grounds that it is destabilizing. In fact, the case is not so clear. Given the installation of air and ballistic missile defense systems, the kind of attack which a NATO country could launch against the Soviet Union could not be all that devastating; and there is far less incentive for a NATO ally to begin pre-emptive war than for the United States to do so. Even in the face of a massive invasion of Europe, there is some question as to whether national nuclear deterrents would be used; their value lies in the uncertainties involved.

This study does not recommend selective proliferation of nuclear weapons and technology. We do conclude that this policy would not necessarily be destabilizing, and might restabilize the dangerous imbalance created in Europe by the lack of credibility of U.S. massive retaliation. Without some substitute for the stabilizing influence of the threat of Central Nuclear War, the situation in Europe will remain militarily unstable. Another alternative to selective sharing of nuclear responsibilities would be, as previously discussed, the open policy of defending Europe with tactical nuclear weapons, thus deliberately extending deterrence to non-homeland areas. This is a deliberate threat to escalate, coupling action on the conventional level to the Central Nuclear War level. Such escalation threats are not destabilizing, and can in fact have a highly stabilizing influence.

#### THE STABILITY OF NON VITAL AREAS

##### THE REQUIREMENT FOR CREDIBLE THREATS

Not all areas can be brought under an extended nuclear umbrella, either through credible threats to defend them with tactical nuclear weapons in such manner that the danger of escalation to the highest levels is a possibility, or through selective shared nuclear responsibilities. There remain areas of importance which cannot credibly fit under the extensions of deterrence.

Stabilizing such areas requires credible adequate threats. One such threat, of course, will be the threat imposed by a visible capability to intervene and defeat disturber actions. As the initiative is always left to the disturber, the level and type of conflict to be employed is also within his power of choice. Thus, the stabilizer is forced to maintain a capability to defeat the enemy at EVERY POSSIBLE LEVEL OF CONFLICT, or else to maintain *escalation dominance*, with both the means and the will to escalate the conflict.

#### Escalation Dominance

A power which enjoys escalation dominance possesses forces such that the higher the level of conflict, the greater advantage he enjoys. Given this capability, illustrated in Chart Nine, the threat to escalate conflicts is credible. Without it, the threat of escalation is meaningless; moreover, the disturber will himself escalate the conflict to a level at which he is successful. Conversely, when the disturber enjoys superiority at low levels he will fight at those levels and launch a propaganda campaign against escalation. In particular, he may even claim that escalation is destabilizing, when in fact the threat to escalate is the only stabilizing factor available in the region.

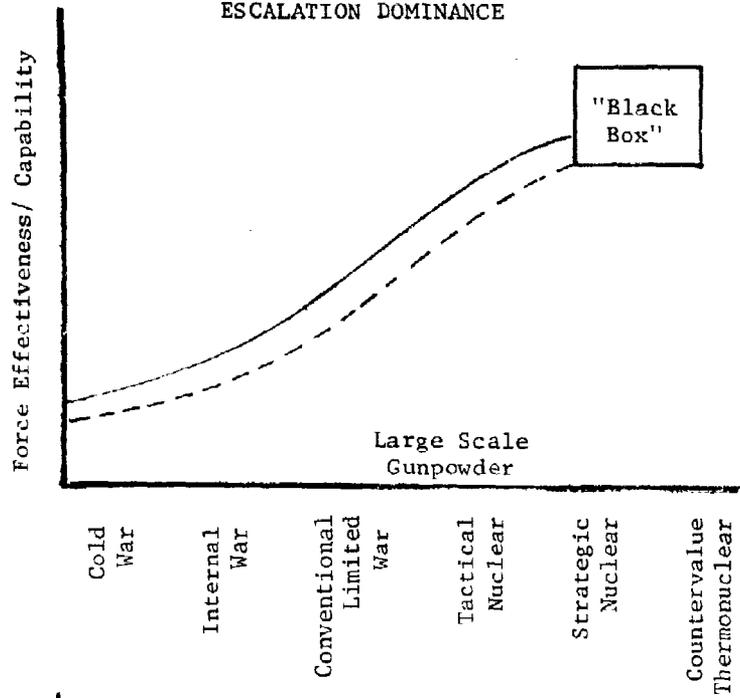
#### Escalation of Objectives

Given escalation dominance, a stabilizer power is capable of restoring the *status quo ante* whenever it is disturbed. This is likely to be a costly operation, and frustrating in the extreme. Moreover, it is no more than partially stabilizing, because the threat to restore the status quo is not an adequate threat to deter the enemy. So long as the disturber has some reason to believe that he can win -- either through erosion of the stabilizer's will, or through a successful campaign to inhibit escalation and thus keep the conflict at a level at which he is superior -- then there is little incentive for him not to have a try. He can lose only his expeditionary forces.

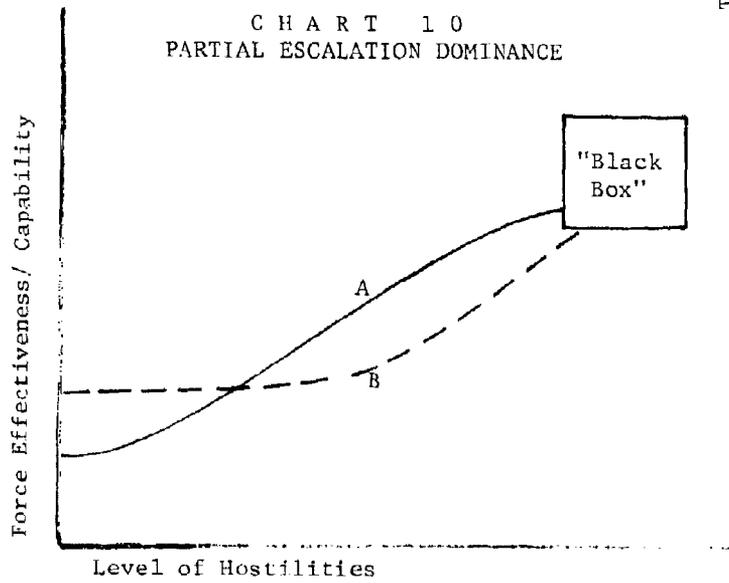
In order to provide an adequate deterrent threat, there must be the possibility of actual *losses* to the disturber; that is, paradoxically, the stabilizer must threaten to change the status quo in his favor; to become disturber in his own right, as a retaliation against attempts to upset the equilibrium. This we have called an *escalation of objectives*.

The stabilizer power threatens to go beyond the status quo whenever the equilibrium is upset by a disturber. This threat restores initiative to the stabilizer power, and gives *both sides* an incentive to maintain stability. Without some such policy on the part of the stabilizers, we see little hope for stability in those areas not covered by extended deterrence; and what stability there is will be imposed by force of arms, through continuous effort, not through deterrence. The policy of escalation of objectives obviates this, but requires escalation dominance for implementation.

C H A R T 9  
 ESCALATION DOMINANCE



C H A R T 10  
 PARTIAL ESCALATION DOMINANCE



Partial Escalation Dominance: A obviously prefers higher levels of hostility, while B will seek to limit escalation of conflict.

## SUMMARY AND CONCLUSIONS

In our present world, stability appears to be a highly rational goal of national strategic planning, provided that the concept and its requirements are properly understood. The alternatives to stability as a goal of United States planning are unattractive. In a world which contains determined and effective disturber powers, stability requires equally strong and determined stabilizer powers who must be ready to act not only to restore equilibrium to unstable situations, but also to take preventative action when required. In the present day, the United States must inevitably be the leader and major force of the stabilizers. Failure to act as a stabilizer abandons increasingly larger parts of the world first to chaos, then to the disturbers, and encourages others to join the disturber camp.

The force requirements of stabilizers and disturbers are not symmetric. The stabilizer powers require a position of *escalation dominance* over the disturbers. At many lower levels of conflict, this capability can be achieved through alliances as well as unilateral effort. It must be achieved in order for the stabilizers to succeed.

The asymmetry of requirements for stabilizers and disturbers extends through every level of conflict. At the highest levels, the stabilizers can employ a strategic posture of "Assured Survival" in contrast to one of "Assured Destruction." Achieving a position of assured survival would allow the deterrent value of the strategic offensive forces to be extended beyond the homeland. In lower levels of conflict, the superiority of the U.S. nuclear arsenal can be used to compensate for deficiencies in gunpowder capabilities, but this will require changes in present policies. Technology properly used can also be exploited at the purely tactical levels of conflict.

A strategy of stability will require constant effort; there is no static stability in the modern technological world. However, stability is a rational goal for U.S. strategic planning. The United States is fully capable of devising, instituting, and sustaining this policy in the foreseeable future.

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<p>Summary report of a study which examines the concept of stability as a goal of national strategic planning and develops seven basic definitions as presently employed in the literature of strategic analysis. Common factors in all definitions are analysed and a concept of stability as a goal is generated.</p> <p>Implications for U.S. defense doctrines generated by adopting stability as a goal of strategic planning are developed and analysed. These include: assured survival, and escalation dominance. Effects of NATO trends and methods of implementing a policy of stability in Europe are also examined.</p>			

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